

## **IN THE CLAIMS**

Please amend claims 1, 11, 12, 22, 23, 27, and 35, and cancel claim 2 as set forth below. The following listing of claims will replace all prior versions, and listings, of claims in the application:

### **Listing of Claims:**

1. (Currently Amended) A method for categorization of an item comprising:  
providing a plurality of categories organized in a hierarchy of categories;  
providing a plurality of categorizers corresponding to the plurality of categories;  
featurizing the item to create a list of item features;  
using the list of item features in a categorizer system including the plurality of categorizers  
for determining a plurality of levels of goodness, wherein using the list of item  
features determines the plurality of levels of goodness using a process to quantify the  
plurality of levels of goodness, to prioritize the plurality of levels of goodness, and to  
resolve two levels of goodness into a third level of goodness;  
using one of the plurality of levels of goodness for invoking an additional categorizer of the  
plurality of categorizers as required;  
categorizing the item in the categorizer system in the plurality of categories based on the  
respective plurality of levels of goodness; and  
returning the item categorized.
2. (Canceled)
3. (Original) The method as claimed in claim 1 including:

using a categorizer system knowledge base for determining the level of goodness for a category with the list of item features.

4. (Original) The method as claimed in claim 1 including:  
listing the plurality of categories and the respective levels of goodness on a list; and  
categorizing from the list.
5. (Original) The method as claimed in claim 1 wherein:  
returning one category for the item among the plurality of categories selected from a group consisting of the one category with the best level of goodness for all the plurality of categories and with the best level of goodness for which determining is completed where all of the plurality of categories are not compared.
6. (Original) The method as claimed in claim 1 wherein:  
returning a plurality of categories for the item among the plurality of categories returns a plurality of categories selected from a group consisting of categories up to a fixed number of the plurality of categories, categories having more than a fixed level of goodness, categories fulfilling a user specified preference, categories not from a categorizer, and categories which are a combination thereof.
7. (Original) The method as claimed in claim 1 wherein:  
returning the category for a plurality of items establishes a categorizer system knowledge base for a topic hierarchy.
8. (Original) The method as claimed in claim 1 including:

listing a plurality of labels for each of the plurality of categories; and  
training a categorizer system trainer using a plurality of items having known categories and  
the plurality of labels to provide a categorizer system knowledge base.

9. (Original) The method as claimed in claim 1 including:  
providing a categorizer system knowledge base;  
using a plurality of items with known categories to learn knowledge in the categorizer system  
knowledge base.
10. (Original) The method as claimed in claim 1 including:  
providing a categorizer system knowledge base;  
providing a plurality of categorizers, each using knowledge in a categorizer system  
knowledge base and the list of item features to compute a degree of goodness for a  
plurality of categories, independent of other categorizers, each using a subset of item  
features to compute a degree of goodness for a plurality of categories, independent of  
other categorizers, and each subset independent of subsets used by other categorizers;  
and  
providing a mechanism to resolve the levels of goodness for a plurality of categories resulting  
from multiple categorizers into a combined level of goodness for a plurality of  
categories.

11. (Currently Amended) A method for categorization of an item comprising:  
featurizing the item to create a list of item features;

providing a plurality of categories organized in a hierarchy of categories and having respective lists of category features using a categorizer system knowledge base for determining the lists of category features;

providing a plurality of categorizers corresponding to one of the plurality of categories, each of the plurality of categorizers using knowledge in the categorizer system knowledge base and the list of item features to compute a degree of goodness for a plurality of categories independent of other categorizers, each of the plurality of categorizers using a subset of item features to compute a degree of goodness for a plurality of categories independent of other categorizers, and each subset independent of subsets used by other categorizers;

~~featurizing the item to create a list of item features;~~

using the list of item features in a categorizer system including the plurality of categorizers with the lists of category features to respectively determine a plurality of levels of goodness, the plurality of levels of goodness determined using a process to quantify the plurality of levels of goodness, to prioritize the plurality of levels of goodness, and to resolve two levels of goodness into a third level of goodness;

using one of the plurality of levels of goodness for invoking an additional categorizer of the plurality of categorizers as required;

categorizing the item in the categorizer system in the plurality of categories based on the respective plurality of levels of goodness;

listing the plurality of categories and the respective levels of goodness on a list; and returning a category for the item from the list; and

providing a mechanism to resolve the levels of goodness for a plurality of categories resulting from multiple categorizers into a combined level of goodness for a plurality of categories.

12. (Currently Amended) A method for categorization of a document comprising:

providing a plurality of categories organized in a hierarchy of categories;

providing a plurality of categorizers corresponding to the plurality of categories;

featurizing the document to create a list of document features;

using the list of document features in a categorizer system including the plurality of categorizers for determining a plurality of levels of goodness, wherein using the list of item features determines the plurality of levels of goodness using a process to quantify the plurality of levels of goodness, to prioritize the plurality of levels of goodness, and to resolve two levels of goodness into a third level of goodness;

using one of the plurality of levels of goodness for invoking an additional categorizer of the plurality of categorizers as required;

categorizing the document in categorizer system in the plurality of categories based on the respective plurality of levels of goodness; and

returning a category for the document.

13. (Original) The method as claimed in claim 12 wherein:

determining the plurality of levels of goodness includes using a process selected from a group consisting of Naive Bayes, quantitative decision-tree classifiers such as C4.5, Bayesian networks, rule-based multi-class classifiers that output a degree of goodness, conditional probability statements, simple heuristics, and a combination thereof.

14. (Original) The method as claimed in claim 12 including:

using a categorizer system knowledge base for determining the level of goodness for a category with the list of document features.

15. (Original) The method as claimed in claim 12 including:  
listing the plurality of categories as the document is compared and the respective levels of  
goodness on a list; and  
categorizing from the list.

16. (Original) The method as claimed in claim 12 wherein:  
returning one category for the document among the plurality of categories selected from a  
group consisting of the one category with the best level of goodness for all the  
plurality of categories and with the best level of goodness for which determining is  
completed where all of the plurality of categories are not compared.

17. (Original) The method as claimed in claim 12 wherein:  
returning a plurality of categories for the document among the plurality of categories returns a  
plurality of categories selected from a group consisting of categories up to a fixed  
number of the plurality of categories, categories having more than a fixed level of  
goodness, categories fulfilling a user specified preference, categories not from a  
categorizer, and categories which are a combination thereof.

18. (Original) The method as claimed in claim 12 wherein:  
returning the category for a plurality of documents establishes a categorizer system  
knowledge base for a topic hierarchy.

19. (Original) The method as claimed in claim 12 including:  
listing a plurality of labels for each of the plurality of categories; and

training a categorizer system trainer using a plurality of documents having known categories and the plurality of labels to provide a categorizer system knowledge base.

20. (Original) The method as claimed in claim 12 including:  
providing a categorizer system knowledge base;  
using a plurality of documents with known categories to learn knowledge in the categorizer system knowledge base.

21. (Original) The method as claimed in claim 12 including:  
providing a categorizer system knowledge base;  
providing a plurality of categorizers, each using knowledge in a categorizer system knowledge base and the list of document features to compute a degree of goodness for a plurality of categories, independent of other categorizers, each using a subset of document features to compute a degree of goodness for a plurality of categories, independent of other categorizers, and each subset independent of subsets used by other categorizers; and  
providing a mechanism to resolve the levels of goodness for a plurality of categories resulting from multiple categorizers into a combined level of goodness for a plurality of categories.

22. (Currently Amended) A method for categorization of a document comprising:  
featurizing the document to create a list of document features;  
providing a plurality of categories organized in a hierarchy of categories and having respective lists of category features using a categorizer system knowledge base

resulting from determining a plurality of documents for determining the lists of category features;

providing a plurality of categorizers corresponding to the plurality of categories, each of the plurality of categorizers using knowledge in the categorizer system knowledge base and the list of document features to compute a degree of goodness for a plurality of categories independent of other categorizers, each of the plurality of categorizers using a subset of document features to compute a degree of goodness for a plurality of categories, independent of other categorizers, and each subset independent of subsets used by other categorizers;

~~featurizing the document to create a list of document features;~~

using the list of document features in a categorizer system including the plurality of categorizers with the lists of category features to respectively determine a plurality of levels of goodness;

using one of the plurality of levels of goodness for invoking an additional categorizer of the plurality of categorizers as required;

categorizing the document in categorizer system including the plurality of categorizers in the plurality of categories based on the respective plurality of levels of goodness from the list;

listing the plurality of categories as the document is compared and the respective levels of goodness on a list; and

returning a category for the document from the list; and

providing a mechanism to resolve the levels of goodness for a plurality of categories resulting from multiple categorizers into a combined level of goodness for a plurality of categories.

23. (Currently Amended) A system for categorization of an item comprising:

a plurality of categories organized in a hierarchy of categories;

a plurality of categorizers corresponding to the plurality of categories;

a featurizer for featurizing the item to create a list of item features;

a categorizer system including the plurality of categorizers using the list of item features for determining a plurality of levels of goodness, wherein using the list of item features determines the plurality of levels of goodness using a process to quantify the plurality of levels of goodness, to prioritize the plurality of levels of goodness, and to resolve two levels of goodness into a third level of goodness, the categorizer system for categorizing the item in the plurality of categories based on the respective plurality of levels of goodness, the categorizer system for using one of the plurality of levels of goodness for invoking an additional categorizer as required; and

a return for returning the item categorized.

24. (Original) The system as claimed in claim 23 wherein:

determining the plurality of levels of goodness includes using a process to quantify the plurality of levels of goodness, to prioritize the plurality of levels of goodness, and to resolve two levels of goodness into a third level of goodness.

25. (Original) The system as claimed in claim 23 including:

a categorizer system knowledge base for determining the level of goodness for a category with the list of item features.

26. (Original) The method as claimed in claim 23 including:

a categorizer system trainer trained using a plurality of items having known categories and the plurality of labels to provide a categorizer system knowledge base.

27. (Currently Amended) A system for categorization of an item comprising:

a categorizer system knowledge base having a plurality of categories organized in a hierarchy of categories and having respective lists of category features;

a featurizer for featurizing the item to create a list of item features; ~~and!~~

a categorizer system connected to the categorization system knowledge base including:

a plurality of categorizers having one of the plurality of categories, the plurality of categorizers for using the list of item features with the lists of category features and knowledge in the categorizer system knowledge base to respectively determine a plurality of levels of goodness using a process to quantify the plurality of levels of goodness, prioritize the plurality of levels of goodness, and to resolve two levels of goodness into a third level of goodness, the plurality of categorizers categorizing the item in the categorizer system in the plurality of categories based on the respective plurality of levels of goodness;[.]

a mechanism for using one of the plurality of levels of goodness for invoking an additional categorizer of the plurality of categorizers as required;

and

a return for returning the item categorized.

28. (Original) The system as claimed in claim 27 wherein:

the plurality of categorizers determine the plurality of levels of goodness using a process to quantify the plurality of levels of goodness, to prioritize the plurality of levels of goodness, and to resolve two levels of goodness into a third level of goodness.

29. (Original) The system as claimed in claim 27 wherein:

the categorizer system knowledge base determines the lists of category features.

30. (Original) The system as claimed in claim 27 wherein:

the plurality of categorizers include a list mechanism for listing the plurality of categories and the respective levels of goodness; and

the plurality of categorizers categorizes from the list mechanism.

31. (Original) The system as claimed in claim 27 wherein:

the return returns one category for the item among the plurality of categories elected from a group consisting of the one category with the best level of goodness for all the plurality of categories and with the best level of goodness for which determining is completed where all of the plurality of categories are not compared.

32. (Original) The system as claimed in claim 27 wherein:

the return returns a plurality of categories for the item among the plurality of categories returns a plurality of categories selected from a group consisting of categories up to a fixed number of the plurality of categories, categories having more than a fixed level of goodness, categories fulfilling a user specified preference, categories not from a categorizer, and categories which are a combination thereof.

33. (Original) The system as claimed in claim 27 wherein:

the return returns the category for a plurality of items to the categorizer system knowledge base for building a topic hierarchy.

34. (Original) The system as claimed in claim 27 including:

a further listing mechanism for listing a plurality of labels for each of the plurality of categories; and

a categorizer system trainer trained using a plurality of items having known categories and the plurality of labels to provide the categorizer system knowledge base.

35. (Currently Amended) A system for categorization of an item comprising:

a categorizer system knowledge base having a plurality of categories organized in a hierarchy of categories and having respective lists of category features;

a featurizer for featurizing the item to create a list of item features; and

a categorizer system connected to the categorizer system knowledge base including:

a plurality of categorizers having the plurality of categories, the plurality of categorizers for determining the list of item features with the lists of category features and knowledge in the categorizer system knowledge base to respectively determine a plurality of levels of goodness using a process to quantify the plurality of levels of goodness, prioritize the plurality of levels of goodness, and to resolve two levels of goodness into a third level of goodness, the plurality of categorizers categorizing the item in the categorizer system in the plurality of categories based on the respective plurality of levels of goodness;[.]

a mechanism for using one of the plurality of levels of goodness for invoking  
an additional categorizer of the plurality of categorizers as required;  
a listing mechanism for listing the plurality of categories and the respective  
levels of goodness on a list[,] ; and  
a return for returning a category for the item from the list.

36. (Previously Presented) A method for categorization of an item, comprising:  
analyzing the item with a plurality of categorizers, each having an associated category, to  
create a list of item features;  
determining a degree of correspondence between features of a category and each of the list of  
item features;  
using the degree of correspondence of at least one of the item features to invoke an additional  
categorizer; and  
categorizing the item based on the degrees of correspondence.

37. (Previously Presented) The method as claimed in claim 36, comprising:  
using the list of item features to determine the degree of correspondence using a process to  
quantify the degree of correspondence, to prioritize the degree of correspondence, and  
to resolve two degrees of correspondence into a third degree of correspondence.

38. (Previously Presented) The method as claimed in claim 36, comprising:  
using a categorizer system knowledge base for determining the degree of correspondence for  
the category with the list of item features.

39. (Previously Presented) The method as claimed in claim 36, comprising:

listing the associated categories and respective degrees of correspondence on a list; and categorizing from the list.

40. (Previously Presented) The method as claimed in claim 36, comprising:  
returning one category for the item with the highest degree of correspondence for all the associated categories and with the highest degree of correspondence for which determining is completed where all of the associated categories are not compared.

41. (Previously Presented) The method as claimed in claim 36, comprising:  
returning a plurality of categories selected from a group consisting of categories up to a fixed number of the plurality of categories, categories having more than a fixed degree of correspondence, categories fulfilling a user specified preference, categories not from a categorizer, and categories which are a combination thereof.

42. (Previously Presented) The method as claimed in claim 36, comprising:  
establishing a categorizer system knowledge base for a topic hierarchy.

43. (Previously Presented) The method as claimed in claim 36, comprising:  
listing a plurality of labels for each of the associated categories; and  
training a categorizer system trainer using a plurality of items having known categories and the plurality of labels to provide a categorizer system knowledge base.

44. (Previously Presented) The method as claimed in claim 36, comprising:  
providing a categorizer system knowledge base; and

using a plurality of items with known categories to learn knowledge in the categorizer system knowledge base.

45. (Previously Presented) The method as claimed in claim 36, including:
  - providing a categorizer system knowledge base;
  - providing a second plurality of categorizers, each using knowledge in a categorizer system knowledge base and the list of item features to compute a degree of correspondence for a plurality of categories, independent of other categorizers, each using a subset of item features to compute the degree of correspondence for the plurality of categories, independent of other categorizers, and each subset independent of subsets used by other categorizers; and
  - providing a mechanism to resolve the degree of correspondence for a plurality of categories resulting from multiple categorizers into a combined degree of correspondence for a plurality of categories.